09 30 00 • TILE

SECTION INCLUDES

Interior Ceramic Wall Tile
Interior Ceramic Floor Tile
Mortar, Grout & Sealants

RELATED SECTIONS

03 30 00	Concrete
06 10 00	Rough Carpentry
07 92 00	Sealants
06 16 00	Sub-flooring
09 20 00	Plaster & Gypsum Board
09 60 00	Flooring
12 35 00	Kitchen Cabinets
22 00 00	Plumbing

Filed Sub Bid

M.G.L. c.149 §44F

Ceramic tile is a stipulated filed sub-bid category under M.G.L. Chapter 149, §44F. If the estimated value of the work in this section exceeds $20,000 and the projects total cost is over $100,000, it triggers the filed sub-bid requirement.

QUALITY AND TESTING STANDARDS & REFERENCES

ANSI A108-1999	American National Standard Specifications for Installation of Ceramic Tile
ANSI A118.3-1999	Epoxy
ANSI A118.4-1999	Latex Portland Cement Mortar
ANSI A118.5-1999	Ceramic Tile Grouts
ANSI A118.8-1999	Modified Epoxy Emulsion Grouts
ASTM C648-84	Standard Test Method for the Breaking Strength of Ceramic Tile
ASTM C1028-89	Standard Test Method for Evaluating the Static Coefficient of Friction of Ceramic Tile
ASTM C627-93-1999	Evaluating Ceramic Tile Systems using the Robinson Tester
ASTM C920-02	Elastomeric Joint Sealants
Tile Council of America	Handbook for Ceramic Tile Installation-2007 See web-site www.tileusa.com for latest edition

Porcelain Enamel Institute (PEI) Abrasion resistance of glazed tile

INVESTIGATION

If the project is a modernization of existing conditions, check both the tile substrate and the structure to assure adequate structural support and stiffness.

Interior Ceramic Wall Tile

MATERIALS

Where high durability, longevity and ease of maintenance are required, ceramic wall & floor tile are cost-effective interior finishes. The following guidelines should be used when specifying interior wall tile

Wall tile for wet areas, such as tub surrounds, showers, janitor's closets or for entry vestibules/stairwells subject to freezing temperatures shall be:

- ❑ Unglazed porcelain tile with through-body color, (water absorption <0.3%)
- ❑ Polished or matte finish
- ❑ Large format tile, 12" x 12" or greater, is preferred to minimize grout joints.
- ❑ Cement backer boards are required.

Moisture-resistant paper-faced drywall is **not** acceptable as a backer.

Wall tile for other areas, such as kitchens, laundry rooms, community rooms and wainscoting may be either porcelain as described above or:

- ❑ vitreous (0.5%-3% absorption, per ANSI A137.1)
- ❑ size and format which the Designer determines to be cost-effective and aesthetically pleasing.
- ❑ cement board or water-resistant fiberglass-faced gypsum board are acceptable as tile backers. Moisture-resistant paper-faced drywall is not acceptable

Wall tile at entry vestibules and corridors which are subjected to high-abuse, such as lower corridor walls at wheelchair user facilities, shall be porcelain with breaking strength greater than 350 lbs. and a minimum PEI wear rating of 5, (per ASTM C 1027). Impact-resistant backer boards are required to work in unison with the tile's inherent impact resistance.

Interior Ceramic Floor Tile

MATERIALS

The following guidelines should be used when specifying interior floor tile:

- ❑ Designer should review the existing design and conditions of floor framing prior to designing new floor tile, particularly with larger format tile, where stiffer floors and/or flexible grouts may be required than with traditional 2x2 mosaic tile.
- ❑ unglazed porcelain tile with through-body color, (water absorption <0.3%)
- ❑ textured or matte finish
- ❑ minimum Coefficient of friction (COF), per ASTM C 1028 of .60 (both wet and dry); except at ramps where minimum COF of .80 is required.
- ❑ mud-set application preferred for new construction where floor-drains are used, or for concrete slab construction.
- ❑ 'Heavy' or 'Extra Heavy' traffic level performance per ASTM C627 or PEI rating of 4 or 5.

MORTAR, GROUT & SEALANTS

Latex-modified Portland cement mortar for plywood floors with vitreous tile.

Portland cement mortar for mud-set applications on concrete with vitreous tile.

Latex/polymer modified Portland cement mortar may be acceptable for porcelain tile, however not all brands are suitable for wet areas.

100% epoxy floor grout is preferred.

IMPORTANT!

Do not specify organic, (pre-mixed) adhesive for porcelain tile because the drying/curing time is too long.

GROUT

Consult with manufacturer of tile-setting materials specified and specify the minimum amount of drying time required before grouting can occur and that the Contractor is to follow the recommendations of the adhesive manufacturer.

Epoxy grout is preferred for both floor and walls at wet areas and areas subjected to intensive use, such as floors of some public corridors and entry vestibules.

Specify low VOC epoxies.

Polymer-modified tile grout is preferred for floor tile.

Standard Portland cement grout with latex additive and sealer is acceptable at most other interior applications.

SEALANTS

Choose sealants carefully, based on the type of material being sealed, expansion coefficient and intended wear characteristics

Sealants shall be either 100% silicone or polyurethane, with closed cell backer rod or bond-breaker tape. Install sealants closely adhering to the manufacturer's recommended depth to width ratios.

Use sealants with maximum VOC content of 250g/L (EPA Method 24) And complying with ASTM C920.

Specify sealant type, grade and class.

Urethane sealant, Type M, Grade P, Class 25 is recommended for all traffic-bearing floor tile joints.

Silicone sealant, Type S, Grade NS, Class 25 is acceptable for most construction, expansion, and seismic joints in tile floors and walls.

Sealants which are acceptable for porous tile, may not be acceptable for non-porous porcelain tile. Avoid specifying sealants which require edge priming porcelain tile, prior to placement.

TUB SURROUNDS

Design

At the tub surround, provide tile up to the ceiling. Consider specifying large format 3 mm thin porcelain panels at tub/shower ceilings where user usage patterns dictate a more water resistant product than painted drywall. Install tile a minimum of 2 inches beyond the edges of the edge of tub/shower walls where adjacent materials are not tile.

The following design features should be specified as part of all tub/shower tile installations:

- ❑ solid blocking at the base of shower walls above lip of tub.
- ❑ provide 2x8 wood blocking at upper and lower wall to allow installation of future grab bars at all elderly units.
- ❑ high quality sheet membrane, (not liquid applied type) for bathroom and shower floors. Detail membrane to provide a water dam at the edges of room and under tub, in case floor floods.
- ❑ pre-formed tile or stainless steel corners at all outside corners; pre-formed cove wall base tile, (including applications where only floor tile is used).
- ❑ bullnose tile or accent borders to mask thickness of tile and setting bed and provide finished appearance where tile finish transitions to painted wall board.

- ❑ stainless steel or vinyl transition strips at all exposed edges or floor tile and where tile transitions to other materials
- ❑ ADA/MAAB-compliant thresholds
- ❑ specify tile from three different manufacturers and list color selection for each manufacturer. Confirm availability of all three tile manufacturers' product and colors just prior to bidding
- ❑ for new construction, coordinate construction, seismic and expansion joints in floors and walls to avoid having joints in tile floors. Where joints are required, coordinate with the bathroom elevations and floor plans.
- ❑ specify urethane sealant, Type M, Grade P, Class 25 for all traffic-bearing floor joints.
- ❑ silicone sealant, Type S, Grade NS, Class 25 is acceptable for most other construction, expansion, and seismic joints in tile floors and walls.
- ❑ sheet applied waterproofing membrane under the tile turned up 6 inches at walls; run membrane beyond the shower area. Counter-flash sheet membrane on wet walls over the upturned base membrane.
- ❑ floor drain located in the center of the shower and finish floor pitched gently to it (1/8 inch per ft. slope)); excessive pitch or cupping at drain complicates wheelchair maneuverability.
- ❑ preformed recessed modular niches, such as those manufactured by The Noble Co., Inc., Grand Haven, MI are preferred, instead of surface-mounted soap dishes, toothbrush/tumbler holders or items with hand holds; include requirement for solid wood blocking on all sides of niche and coordinate tile size with size and location of niche, to minimize tile cutting.
- ❑ do not install niches on exterior walls, where thermal short circuits are created behind niche. Counter-flash waterproof wall membrane with flanges of niche. Provide rigid insulation for sound control behind niche, where wall insulation is used for sound control elsewhere in wall.

WHEEL-IN SHOWERS

Review the needs of the users

Investigate different systems and provide manufacturer's details; follow Tile Council of America's latest Handbook of Ceramic Tile Installation.

Consider pre-fabricated shower floor pan systems which employ integral pan flashing and gasketed or factory installed floor drain clamps, to minimize potential for leaks due to poor field-installed drain flashing.

TUB SEATS

Tub & shower seats: per MAAB regulations and DMR guidelines for all Group 2B accessible bathrooms.

Avoid hinged tub seats where possible; interview tenant care providers at Group 2B bathrooms and discuss possible alternatives such as fixed seats designed of durable, waterproof materials or portable seats designed to prevent accidental tipping.

If the tenant care provider and Designer prefer a built-in tub seat then design with large format tile. or one-piece solid surface material. Pitch top of seat slightly toward tub; install waterproof wall and floor membrane to completely seal built-out tub seats.

Provide care to have an adequately slip proof surface that will not be overly abrasive.